



# Concordia University 2023 Waste Audit Report



**Prepared for:**

Concordia University, 1455 Boul. de  
Maisonnette Ouest, Montréal, QC H3G  
1M8

**Prepared by:**

Sustainability Ambassadors Program  
(SAP) 'Waste Busters' team:

**Anicha Anli**

**Diane Maldonado**

**Sydney Brierley**

**Nazeer Rahim Bhati**

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# 1. Acknowledgments

Before we present the results and findings for Concordia's 2023 Waste Audit, we would like to acknowledge the valuable help and support we received from many departments in campus and to the amazing volunteers that made this project happen.

First and foremost, we would like to thank the Office of Sustainability for their support, in particular, to Meredith Marty-Dugas, Sustainability Ambassadors Program Coordinator, for all the knowledge she happily shares, the tools she provided to us and all the amazing opportunities she enabled throughout the making of this project, for being a friend but also a great mentor through this year. We would also like to thank Christian Favreau, Sustainability Engagement Assistant for the support and fantastic ideas that contributed to the making of this project.

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Last but not least, we want to thank our amazing volunteers, for your outstanding will to learn and get involved, for sharing your perspectives with our team, and of course, for putting up with the funny smells and findings that inevitably come with a Waste Audit, without you none of this would have been possible. Thank you.

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### 3. Introduction

Concordia University is committed to sustainability and reducing its environmental footprint. As part of this commitment, the Waste Busters team, a group of four students from the Student Ambassador Program (Office of Sustainability), conducted a waste audit on the SWG campus during the last week of February and the second week of March 2023. The purpose of this waste audit was to identify areas where waste reduction efforts are needed and to provide data in order to spread awareness amongst students. Items are continuously being disposed of incorrectly and our goal is to measure to what extent our university has a material segregation issue.

This report provides a summary of the key findings of the waste audit, including an analysis of the types and quantities of waste generated on campus and recommendations for how waste reduction efforts can be focused. By conducting this waste audit and sharing the findings and recommendations with the Concordia University community, the Waste Busters team hopes to inspire and empower students, faculty, and staff to take action to reduce waste and promote sustainability on campus.

### 4. Methodology

The waste audit was conducted in accordance with the BOMA BEST certification method for waste management. The methodology involved collecting and sorting waste samples from representative areas across campus, including academic buildings, residence halls, and dining facilities. Representative areas across campus were selected for waste sampling, including academic buildings, residence halls, and dining facilities. The sampling was conducted over a period of one day during normal operating hours to ensure a representative sample of waste was collected.

The Waste Busters team used gloves, safety glasses, and sorting tables to sort the waste samples. The waste was sorted into the following categories: paper, plastics, glass, metals, organics, and other materials. The waste was sorted and weighed to determine the types and quantities of waste generated on campus. The data collected was used to

calculate the waste diversion rates and identify areas where waste reduction efforts should be prioritized. To ensure the accuracy of the data collected, a portion of the waste samples were re-sorted and weighed by a different member of the Waste Busters team. It should be noted that the waste audit was conducted over a period of five days and may not be fully representative of the waste generated on campus throughout the year. Additionally, some waste streams, such as hazardous waste, were not included in the audit due to safety concerns. Overall, the waste audit was conducted in a manner that ensured the accuracy and reliability of the data collected. The results of the audit are presented in the following section.



# 5. Results & Analysis

## 5.1. Results

The waste audit was conducted in accordance with the methodology outlined in the report. The audit took place on five separate dates: Tuesday, February 21st, 2023; Wednesday, February 22nd, 2023; Thursday, February 23rd, 2023; Tuesday, March 14th, 2023; and Thursday, March 16th, 2023. Volunteers were gathered for each audit date, and the waste audit was conducted following the established protocol.

After collecting all the data from the waste audit, the information was validated and processed. The data was then tabulated, classified, and analyzed to generate meaningful information such as facts, figures, and charts.

The initial analysis involved summing the data to obtain information on the total waste quantity audited in kilograms, categorized by the general waste types audited - Landfill, Mixed Recycling, Paper & Compost. Additionally, the composition of each waste type was obtained to provide a more comprehensive understanding of the waste generated by the organization.

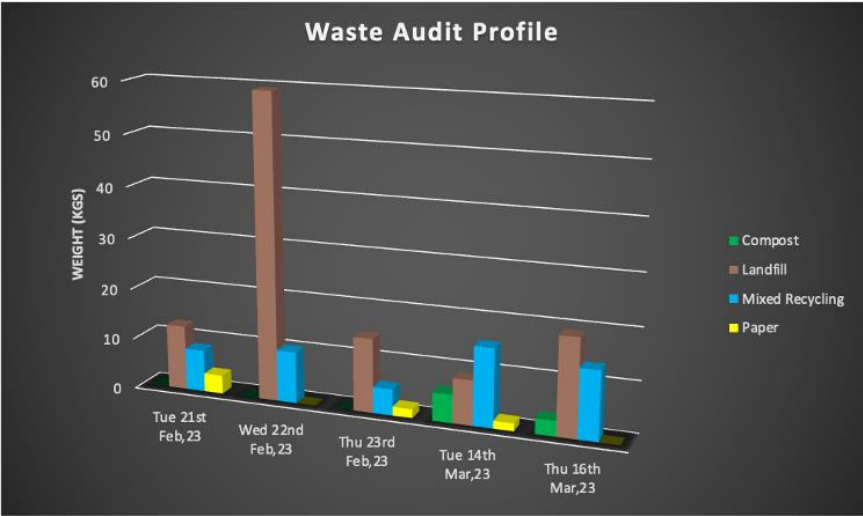
Values	Compost (kg)	Landfill (kg)	Mixed Recycling (kg)	Paper (kg)	Grand Total (kg)
Tue 21st Feb,23	0	12.6	8.2	3.6	24.4
Wed 22nd Feb,23	0	59.2	10.1	0	69.3
Thu 23rd Feb,23	0	14.4	5.1	1.7	21.2
Tue 14th Mar,23	5.5	8.7	15.3	1.5	31
Thu 16th Mar,23	3	19	13.433	0	35.433

Table 1. Total Waste Audited in kg per day

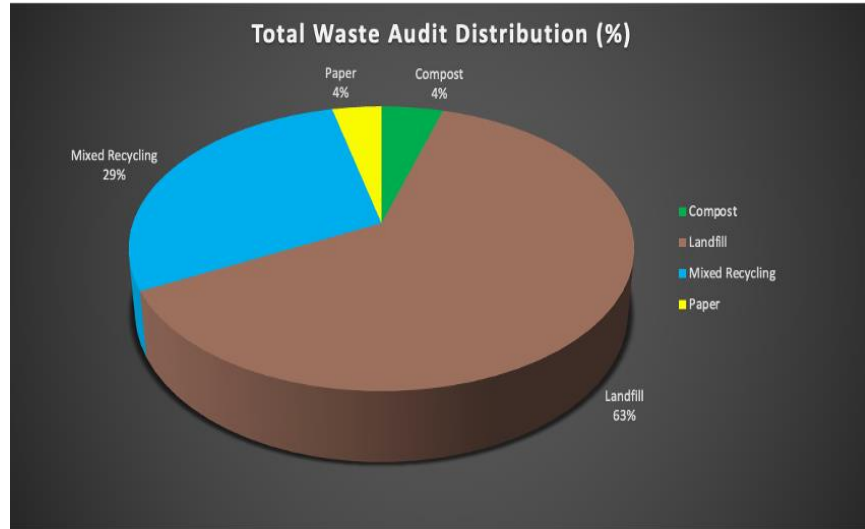


Graph 1. Total Waste Audited in kg

In addition, the waste audit profile was generated, which provided us with a detailed breakdown of the waste types audited on each audit date. This information helped us better understand the waste stream composition and provided context for the audit data analysis.



Graph 2. Waste Audit Profile



Graph 3. Total Waste Audited Distribution Percentage

## 5.2. Analysis

### 5.2.1. Waste Contamination

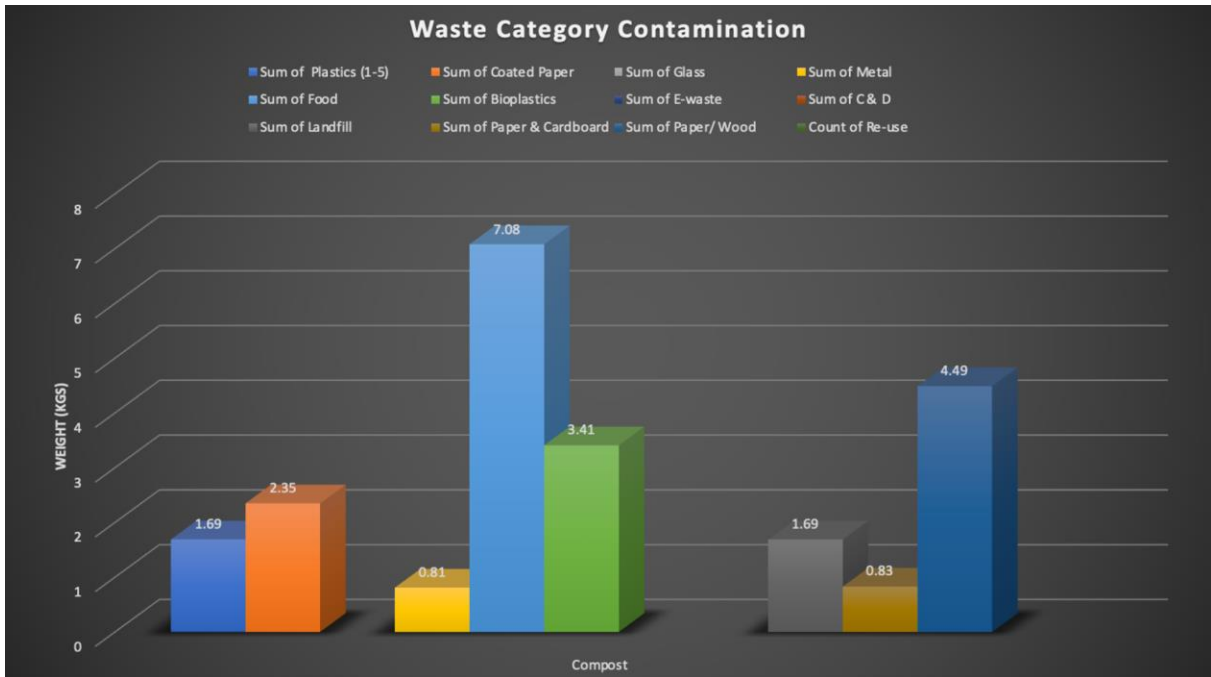
One of the primary objectives of the waste audit was to identify the level of waste contamination at the university. To achieve this, the data collected from the audit was analyzed and classified. Through this analysis, we were able to obtain a deeper understanding of the waste patterns and contamination levels within each waste category - Landfill, Compost, Mixed Recycling, and Paper.

To visualize this data, several graphs were generated, providing insights into the variety of sub-categories and contamination levels found in each waste bin. It was fascinating to observe the different types of materials present in the waste bins, and the extent of contamination in some of the waste streams.

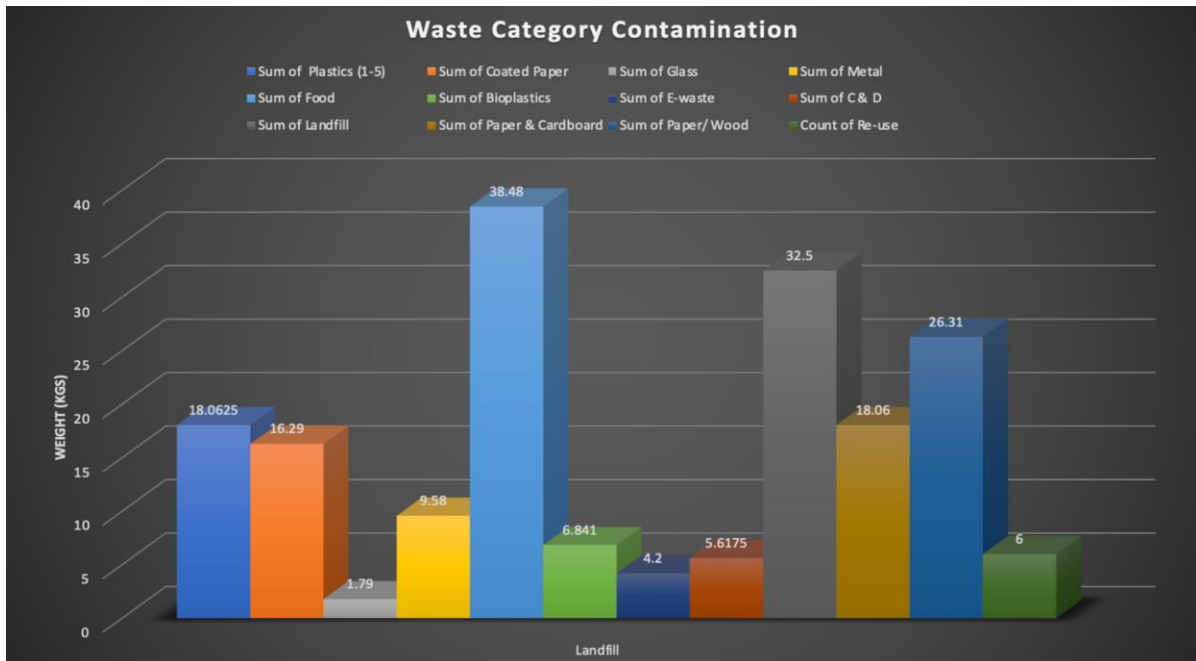
The waste contamination analysis identified areas where contamination levels were high, such as in the Landfill waste stream, where plastic and food waste were frequently found. These findings highlight the importance of proper waste segregation and disposal



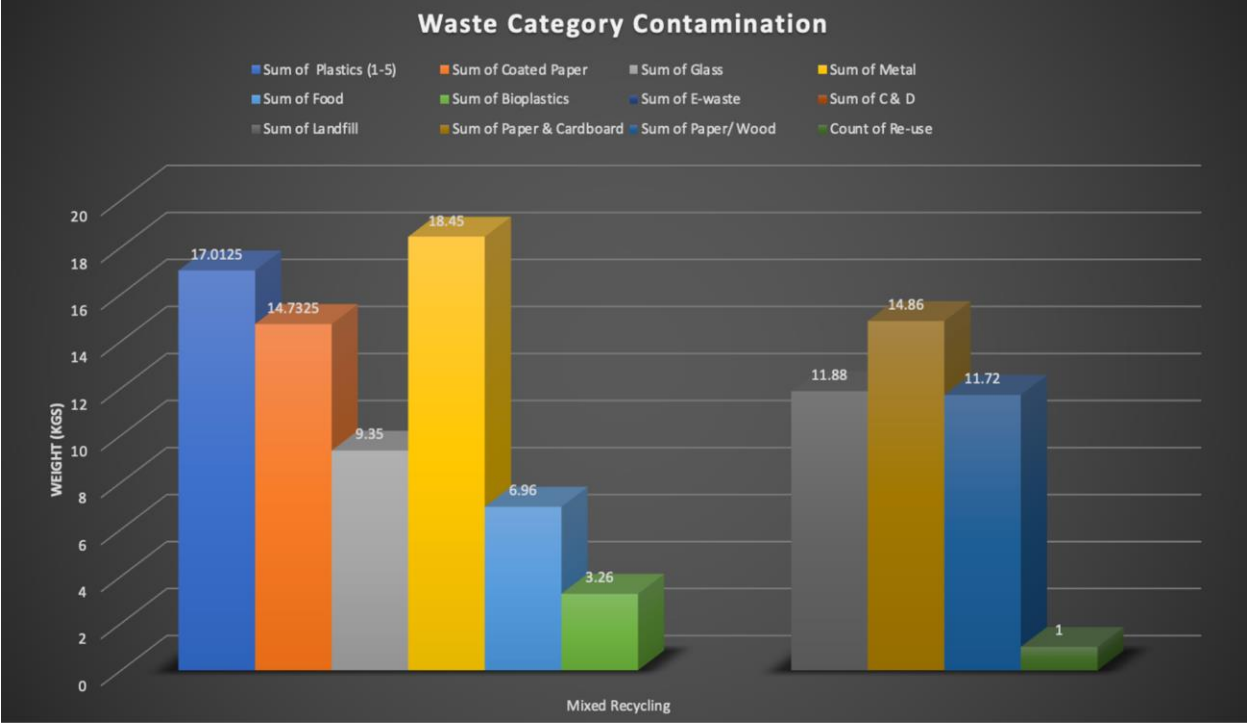
practices, as well as the need for educational campaigns to raise awareness among the university community.



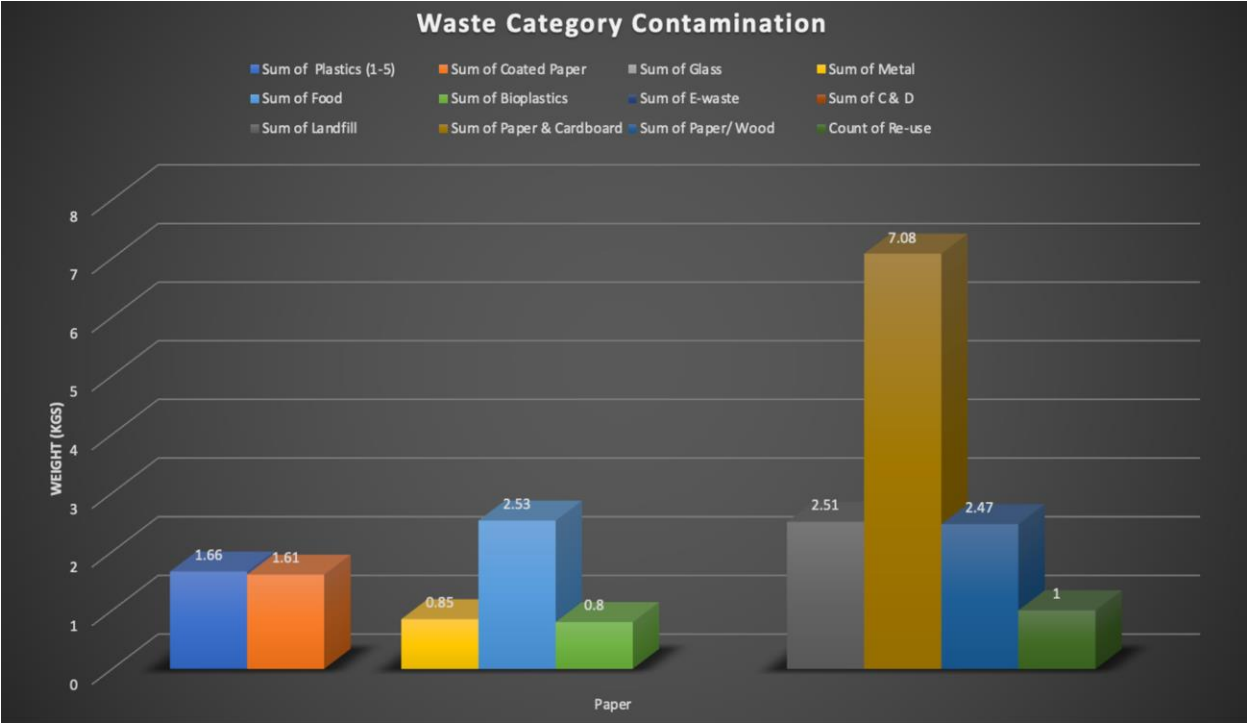
Graph 4. Contamination in Compost Stream



Graph 5. Contamination in Landfill Stream



Graph 6. Contamination in Mixed Recycling Stream

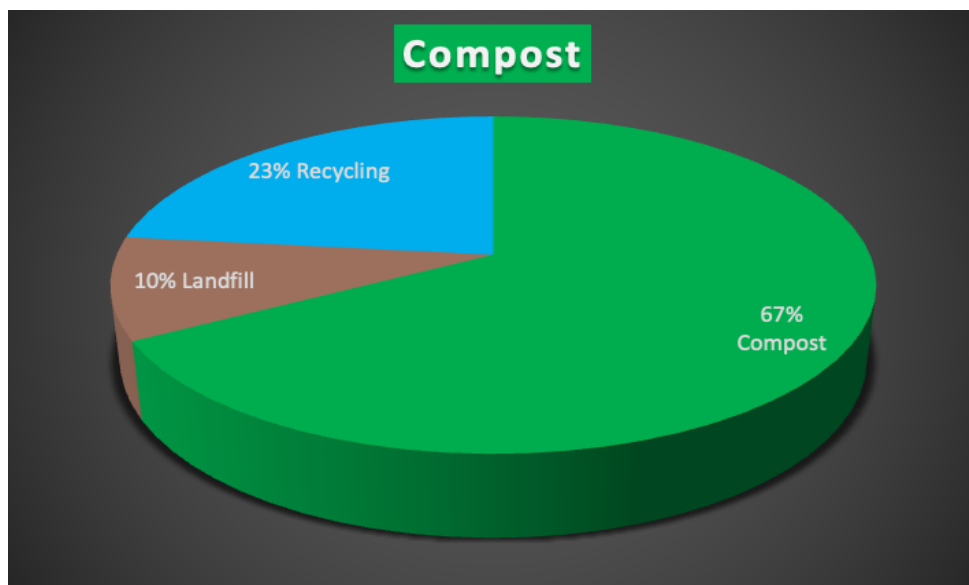


Graph 7. Contamination in Paper Stream

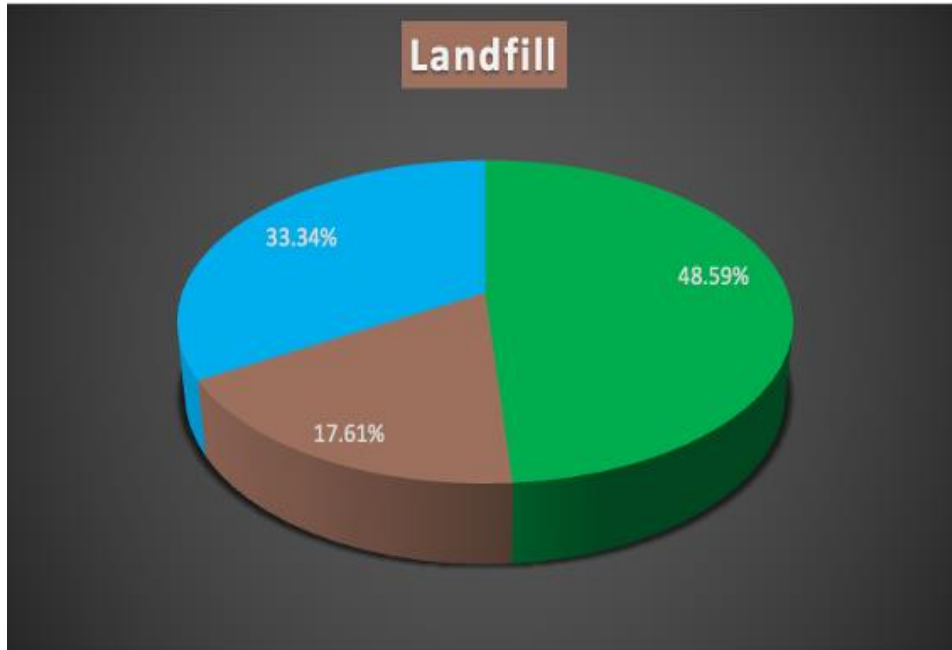
It is interesting to observe that the compost bin mostly contains food waste followed by paper and wood waste. Also, the landfill waste is also filled with mostly food waste, followed by Landfill & paper & wood waste. The mixed recycling waste had a blend of all category waste which was most confusing at the university- with some plastics & metal wastes. The paper bin which was separately used in the university was found effective because most of the waste was paper.

Furthermore, the waste with all the sub-categories was combined and the international standard of waste category- Landfill, compost & Recycle waste contamination data was obtained in each category.

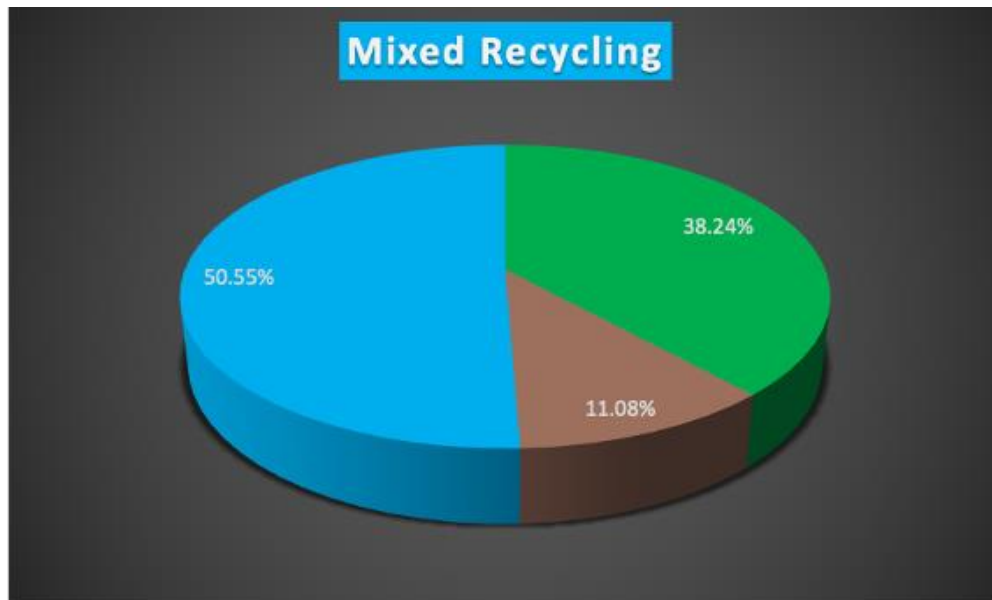
(Note: Paper waste was generalized and considered under mixed recycling waste.)



Graph 8. Presence of sub-categories in the Compost Stream



Graph 9. Presence of sub-categories in the Landfill Stream



Graph 10. Presence of Sub-categories in the Mixed Recycling Stream

The waste audit results were concerning, as they revealed high levels of contamination in the university's waste stream. The landfill waste category was found to be shockingly

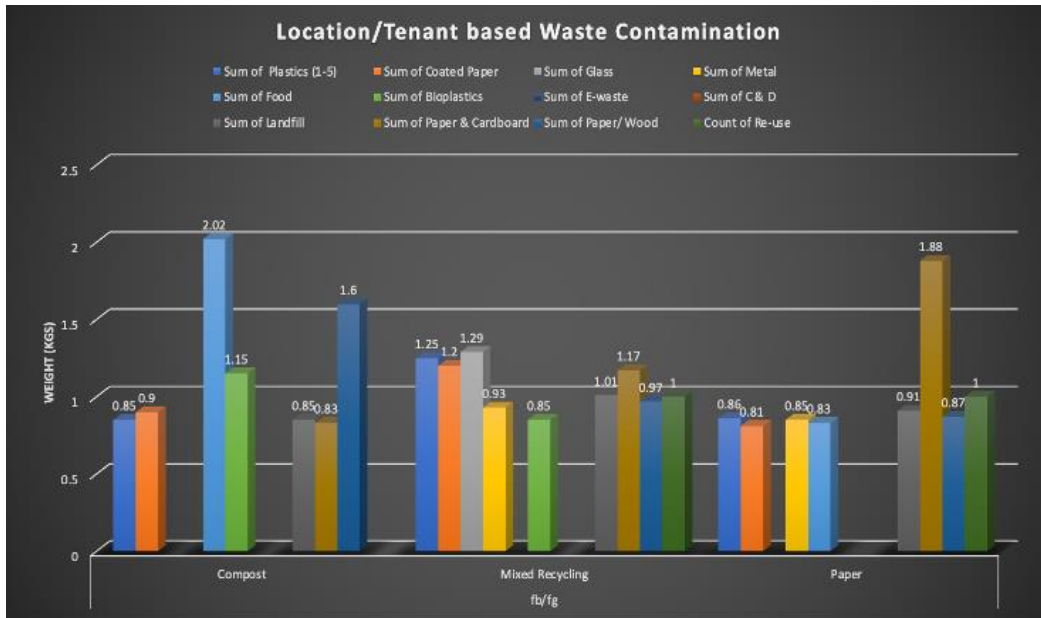
contaminated, with only 17% of the actual landfill waste being deposited in the bin, while the majority consisted of compost and recyclable waste.

### 5.2.2. Location/Tenant Waste Contamination

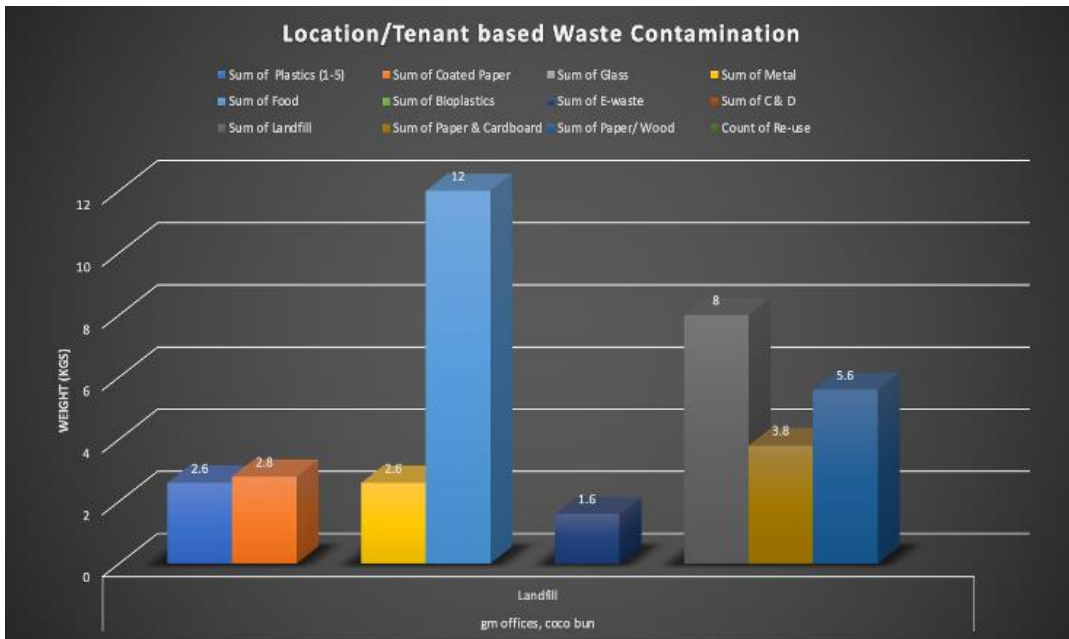
The waste audit provided us with a wealth of data that could potentially be used to extract additional insights. One such analysis we conducted was based on the location and tenants on campus. Since there are several buildings and tenants on the campus, we collected random data from specific waste bins of different categories in various locations. The resulting data shows the distribution of waste in bins from different locations for a particular waste category. This information will be instrumental in identifying areas of high contamination and developing targeted interventions to improve waste management practices in specific locations or among certain tenants.



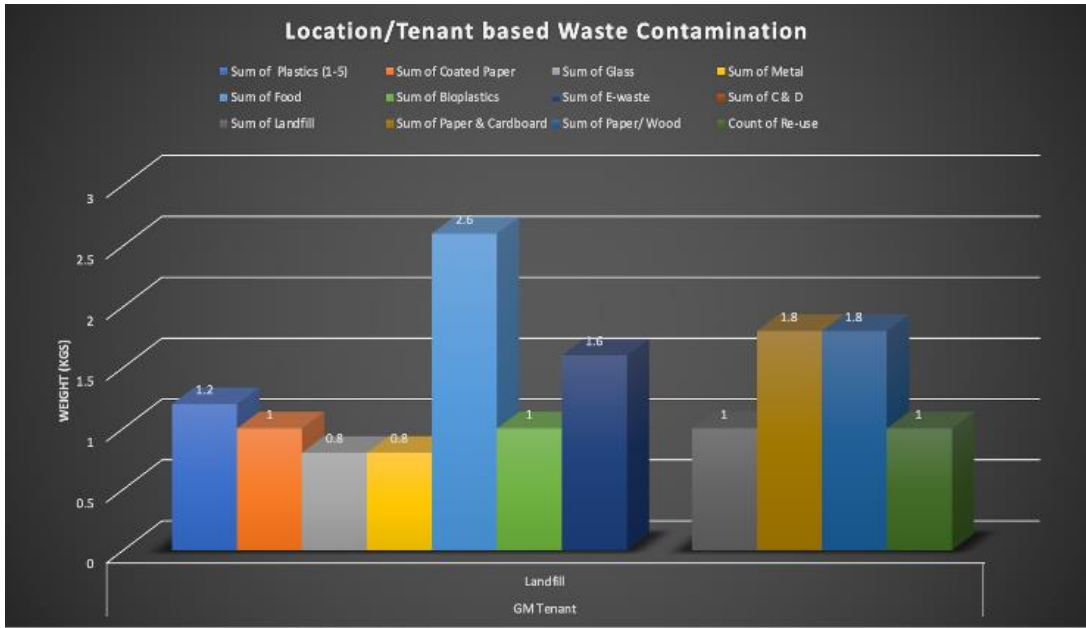
Graph 11. Contamination in Mixed Recycling - EV & Starbucks



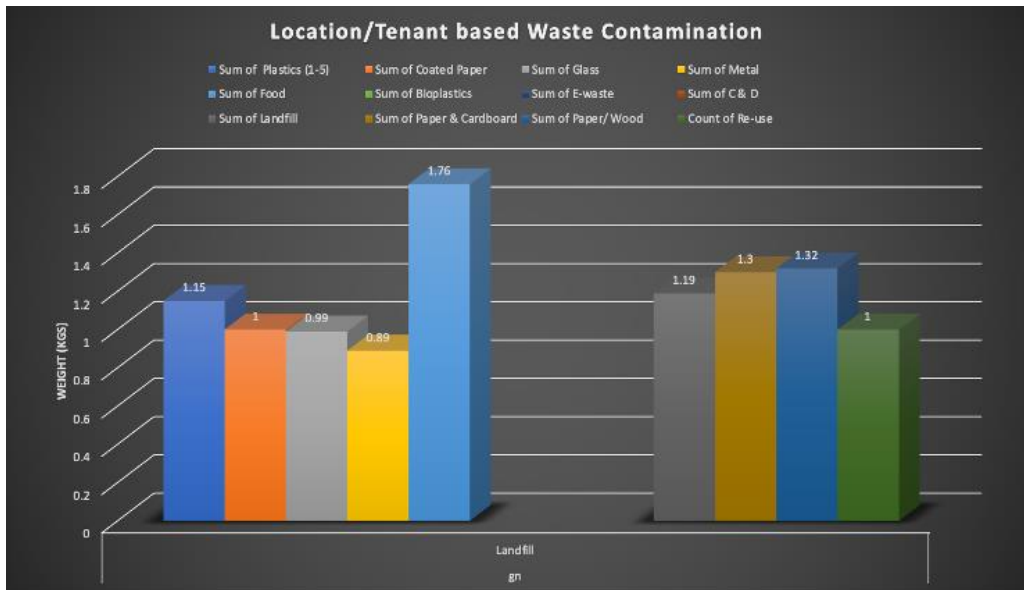
Graph 13. Contamination in Mixed Recycling - FB & FG



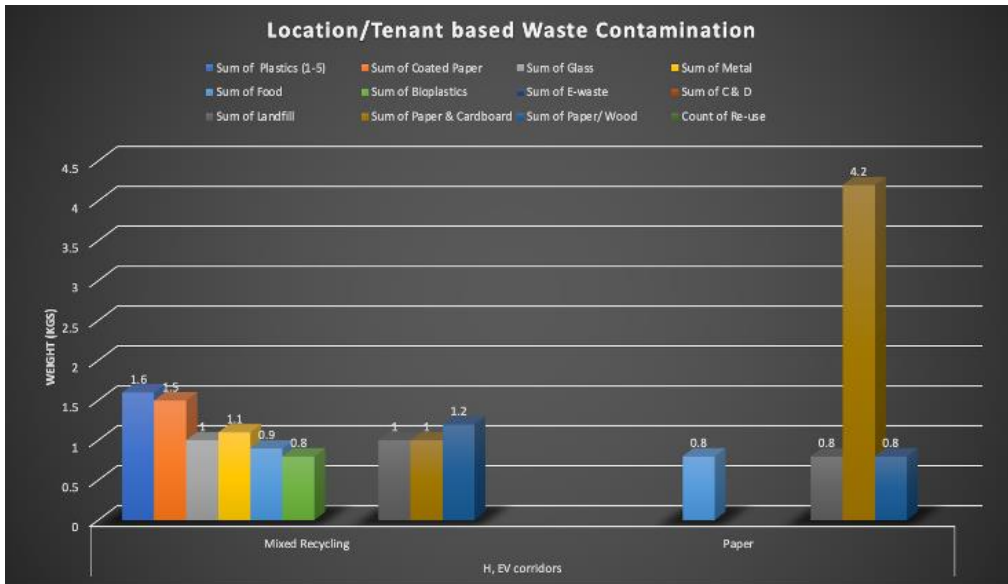
Graph 14. Contamination in Landfill - GM & Coco Bun



Graph 15. Contamination in Landfill - GM Tenant



Graph 16. Contamination in Landfill - GN



Graph 17. Contamination in H & EV

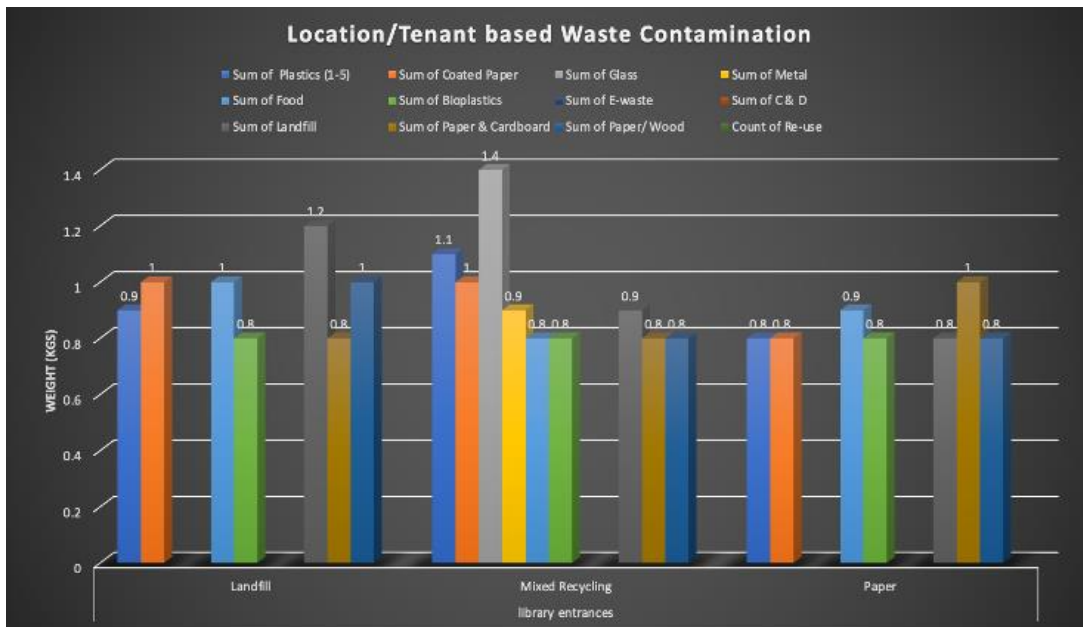


Graph 18. Contamination in Mixed Recycling - Jugo Juice

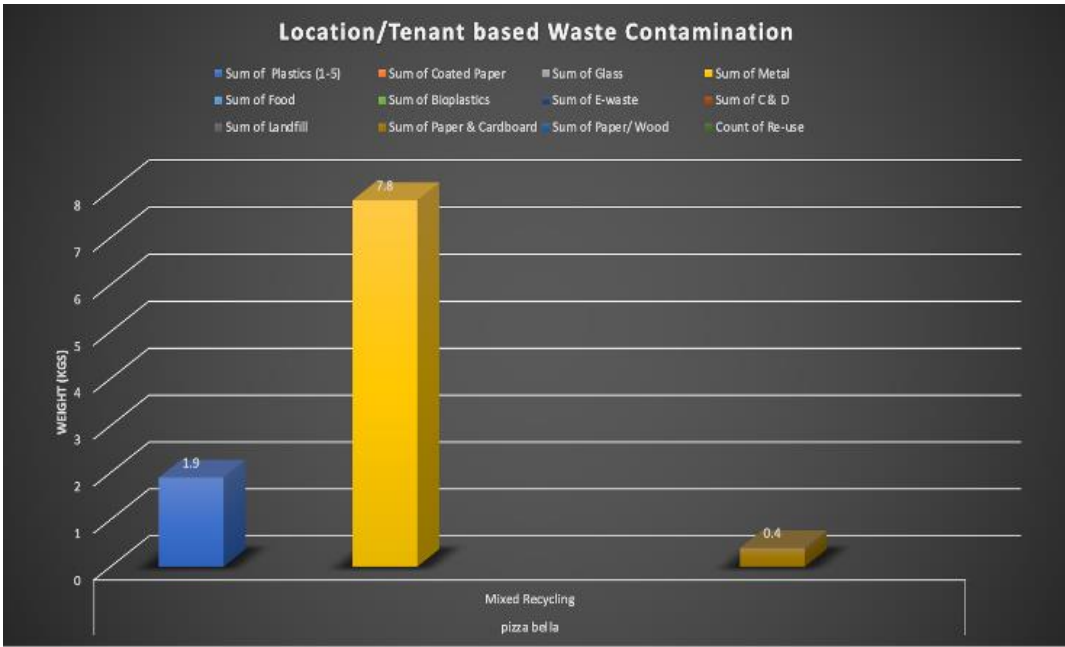




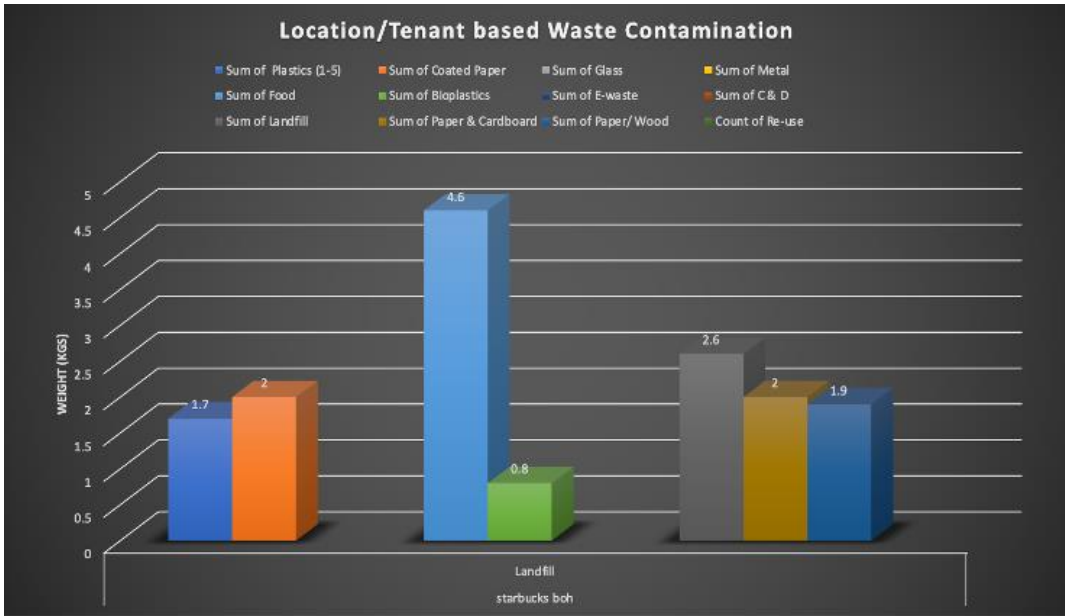
Graph 19. Contamination in Landfill - Kitchenette



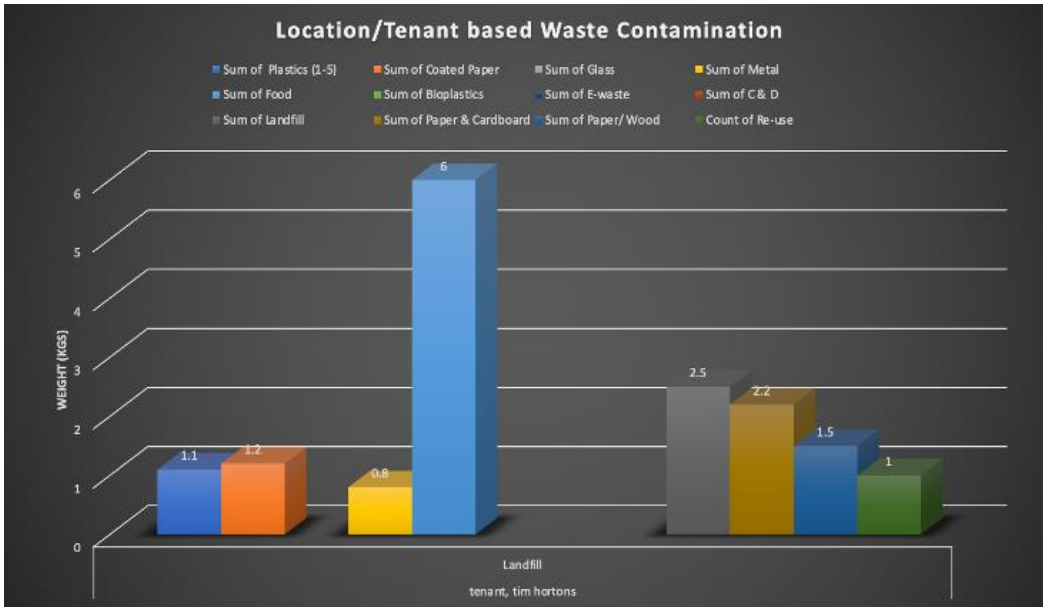
Graph 20. Contamination in Mixed Recycling - Library



Graph 21. Contamination in Mixed Recycling - Pizza Bella



Graph 22. Contamination in Landfill - Starbucks



Graph 23. Contamination in Landfill - Tim Hortons

Our analysis revealed that the most common types of waste found across all tenants were a mixture of food waste in the landfill and paper and cardboard waste. This finding highlights the need for improved waste management practices, including education and outreach efforts aimed at reducing the amount of food waste and increasing the recycling of paper and cardboard materials.

### 5.3. Findings

The waste audit conducted by the Waste Busters team on the Concordia University campus in Winter 2023 yielded the following findings:

- Total Waste Generated: 181.33 kgs.
- Waste Composition: Compost (4%), Landfill (63%), Mixed Recycling (29%), and Paper (4%)
- Waste Diversion Rate: 37%
- Landfill Contamination Rate: 82.40%
- Recycling Contamination Rate: 49.45%
- Compost Contamination Rate: 33.00%

The waste audit provides valuable insights into the waste management practices on the Concordia University campus and identifies areas where waste reduction efforts can be focused. The results of the audit will be used to develop and implement strategies to reduce waste and promote sustainability on campus.

## 6. Recommendations

Based on the findings from the 2023 Waste Audit conducted by SAP's Waste Busters team on the Downtown Concordia University campus, it is important to acknowledge the areas of improvement to pinpoint where changes can be made in order to achieve Concordia's Zero Waste Plans by 2040 or before. Some of the following initiatives suggest changes to existing Zero Waste programs but others propose the implementation of new education-oriented programs to raise awareness within the community and improve waste management practices.

It is recommended that at the beginning of each semester, Zero Waste volunteers stand next to the disposal stations of highly transited areas during peak meal hours for a period of 2 weeks to provide feedback and education as needed mainly targeting new students but also any other student that may still hesitate when sorting their waste. If this is not feasible or there aren't enough volunteers available, a mandatory video on proper waste sorting on Moodle would serve as one of the main educational platforms for students and staff to have sufficient tools to walk towards a Zero Waste-oriented culture, for further details on this, see section 5.6.

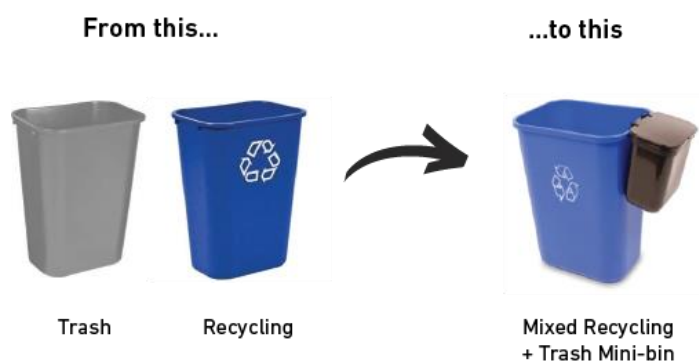
### **6.1. Waste stations design**

#### **6.1.1. *Smaller bins for landfill***

Based on the waste audit figures, the diversion rate, of 37% showed to be still far from Concordia's Zero Waste Plan of 90% diversion from landfill. However, the potential diversion, which represents the percentage of total materials that could have been diverted from landfill if they had been placed in the proper recycling stream, yielded 89%

which is very close to the diversion goal and means it is doable with collaboration from all the community. To allow a smooth shift from landfill, it is recommended the implementation of smaller, and fewer landfill bins, as theoretically, only 11% of the waste produced would end up in this stream.

The following images show examples of how these bins could look in a pilot project, note that none of these images show the compost bin, but it would be the same size as the recycling bin.



### **6.1.2. Better signage on waste stations**

The high recycling contamination rate found during the waste audit indicates the need for improved recycling education and signage on campus, it was found that 33.34% of the total weight from the landfill stream was recyclable material, thus, more exemplifications of the most common items for each stream might be necessary. In addition to this, it is also suggested that within the education and signage, students are asked to empty the remaining liquid on their containers in the closest sink and the remaining food in the organic stream since the liquid weight contributed relatively significantly to the total amounts, and with this, extra bags need to be used. The following images show examples of how this information could be implemented in signage.



**6.1.3. Implementation of more Compost Bins to Divert from Landfill**

The audit showed that the presence of compost, 48.59%, in the landfill stream even surpasses the total percentage of landfill with 17.61%, this tells us that more compost bins are needed for the community to dispose of their organic waste properly, even more so on buildings with limited access to these bins like the library and building entrances, this, of course, would be complemented with signage and education as addressed in points 1.2 and 2.1. It is also suggested that compost bins are implemented in places where compostable brown towel papers are available, like in the restrooms and laboratories.

**6.1.4. Implementation of Food Waste Reduction Strategies**

Food waste comprised a significant portion of the total waste generated during the audit period, indicating the need for food waste reduction strategies on campus. It is suggested that the Zero Waste department and the Office of Sustainability work with dining facilities to implement food waste reduction strategies, such as composting programs and

donation programs, which can divert food waste from landfill and support local food banks.

#### ***6.1.5. Accessible Re-Use Bins on Campus***

Several items that could have potentially been re-used were found in the landfill stream, e.g., shoes, cleaning articles, kitchen utensils, and art pieces, it is proposed that, in collaboration with CUCCR, more accessible re-use bins are implemented in highly transitted areas in campus.

## **6.2. Education**

#### ***6.2.1. Mandatory Moodle course on proper waste sorting***

When comparing the low diversion rate of 37% yield in the audit to the high potential diversion rate of 89%, it became evident that more education is needed. Thus, the implementation of a mandatory Moodle course on proper sorting techniques is suggested, with this, students and staff will have the needed knowledge to place their waste into the proper stream.

#### ***6.2.2. Mandatory Training for the Facilities Management Staff***

Being in the waste compactor during the days of auditing allowed us to notice some areas of opportunities when it comes to the staff's day-to-day activities, training where the staff can be taught the proper use of bags and disposal on the correct compactor is suggested.

#### ***6.2.3. Reduce program***

The waste audit identified a high percentage of plastics in the waste stream, indicating the need to reduce single-use plastics and increase the use of reusable materials on campus. It is suggested that the Office of Sustainability, in collaboration with Zero Waste, develop and implement a program to reduce single-use plastics, increase the use of reusable containers, and promote sustainable purchasing practices. And perhaps, as a future project, have a program in collaboration with tenants like Starbucks and Tim

Hortons where the consumers can have a discount, or collect points every time they bring their own reusable cups or containers for their food and beverage.

## **6.3. Tenants**

### ***6.3.1. Rules for Tenants***

In the tenants' waste, it was found that little segregation is being made, with a lot of organic and recycling materials going to the landfill stream, it was also observed that a lot of bags are being used, without filling them up, they stack a lot of barely used bags together contributing to more plastic contamination. It is therefore suggested that tenants have a set of rules to follow and that the Facilities Management provide them with the necessary compost and recycling bins, as well as signage.

## **6.4. Continual Improvement Review**

### ***6.4.1. Conduct Regular Waste Audits***

Conduct Waste Audits at least every one to two years to track the progress being made and identify further opportunities for waste reduction, it is recommended that the Facilities Management department conduct regular waste audits on campus, as they will allow the campus community to monitor the effectiveness of waste reduction strategies and adjust practices as needed.

Overall, it is recommended that Concordia University's sustainability-oriented departments take immediate action to implement the above recommendations in order to promote sustainability and reduce waste on campus. These recommendations are based on the findings of the waste audit and are aligned with the BOMA BEST certification method for waste management.



## 7. Conclusion

The waste audit conducted by the SAP's Waste Busters team on the SGW Concordia University campus in February and March of 2023 provides valuable insights into the waste management practices on campus and identifies opportunities for waste reduction and sustainability. The audit reveals that while there are some effective waste management programs in place, there is still room for improvement in several areas.

The results of the audit show that the total amount of waste generated on campus is significant and that a high percentage of this waste is recyclable or compostable. The recycling contamination rate is also high, indicating a need for improved recycling education and signage on campus. Additionally, food waste is identified as a major area for improvement, and the Waste Busters team recommends the implementation of food waste reduction strategies such as composting and donation programs. Finally, the audit highlights the need to reduce single-use plastics and increase the use of reusable materials on campus.

In order to address these issues and promote sustainability, the Waste Busters team recommends a number of strategies, including improved recycling education and signage, implementation of food waste reduction strategies as well as more compost bins, increased use of reusable materials, and regular waste audits. These recommendations are aligned with the BOMA BEST certification method for waste management and will help Concordia University to achieve its 2040 Sustainability Goals.

In conclusion, the results obtained from the waste audit provide a solid foundation for improving waste management practices on campus and promoting sustainability. We hope that the recommendations presented in this report will be implemented by the authorities and designated departments and that they will lead to a waste reduction, an

increase in recycling rates, and a Zero-Waste oriented community that enables a more sustainable future for Concordia University.

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